REMARKS

Claims 1-20 remain in the application. Reconsideration of the claims as amended herein is respectfully requested.

In the Office action of April 16, 2004, a new title more indicative of the claimed invention was required. The title has been amended accordingly.

Original claims 1-3, 5-13 and 15-19 were rejected as being anticipated under 35 U.S.C. § 102(b) by US Patent 6,390,688 to Lutzen et al (hereafter "Lutzen"). Claims 4, 14 and 20 were rejected under § 103(a) for being unpatentable over Lutzen. Four additional US patents were cited but were not applied to reject the claims.

The specification has been reviewed, and is amended at the bottom of page 12 to refer to the crimping action obtained via applicants' crimp insert 30, as depicted in FIG. 6 of the original drawing. No new matter has been introduced.

Independent claims 1 and 10 are amended to point out more clearly those features of applicants' connector assembly that distinguish it from the cited art. Claims 7, 8, 17 and 18 are amended to correct minor informalities. The following remarks show that all of the pending claims are now in condition for allowance.

The Present Invention

Applicants' presently claimed connector assembly provides a strain relief feature for optical fiber cables, including those whose fiber cores have relatively hard (e.g., polymer) coatings such as the coating 24 shown in FIG. 2 of the present application. The coating 24 may, for example, have a thickness on the order of only 15 microns.

Amended claim 1 calls for a connector system including a connector plug, and a crimp insert having an axial bore extending between proximal and distal ends of the insert. A first portion of the axial bore opens at the proximal end and has a first diameter that corresponds to an outside diameter of an outer jacket of an optical fiber cable, and second portion of the bore has a second diameter that corresponds to an outer diameter of an unjacketed end of the cable.

Specifically, the crimp insert is constructed and arranged to deform uniformly and radially inward about the circumference of the cable in response to a crimp force applied by a set of jaws on the outer periphery of the insert, in the vicinity of the first and the second portions of the axial bore in the insert. Accordingly, both the outer jacket and the unjacketed end of the cable will be restrained from axial movement with respect to the insert once the insert is joined to the connector plug. Claim 10 calls for an optical fiber cable and connector assembly, including a connector ferrule unit that has the crimp insert described above.

The Cited Art

Lutzen (USP 6,390,688) discloses a strain relief connector for optical fibers that are coated, buffered, and/or jacketed with elastomeric materials. A fiber with the elastomeric coating extends through a cylindrical metallic crimp sleeve. The sleeve is then compressed by a long flat die (see FIGS. 4 & 5 of Lutzen) so as to deform the axial cross section of the coated fiber to a width that is substantially larger than its height. See FIG. 3. That is, a long, flat crimp is produced in response to the compression force exerted by the die.

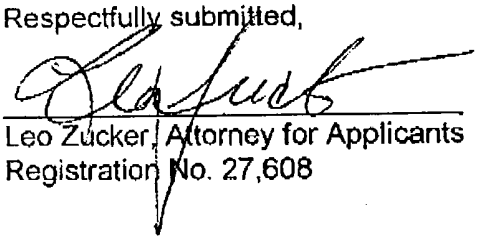
Elastomeric coatings on the cable fibers in Lutzen have typical wall thicknesses of, e.g., 62.5 microns, and elastomeric buffers have typical wall thicknesses of, e.g., 325 microns. Because the coatings and buffers are relatively

thick and soft materials, the resulting crimp retention is achieved by flow and compression of the materials about the fiber core, and *without any direct contact* between the deformed metallic sleeve and a glass surface of the optical fiber.

By contrast, the presently claimed connector assembly may be used with cables having glass optical fibers that are coated with a hard (not elastomeric) polymer coating typically only about 15 microns thick and which can not be expected to flow when compressed. Unlike Lutzen, applicants' connector assembly does not achieve cable retention by inducing any flow of fiber coatings, buffers, or jackets. Instead, a force is applied on applicants' crimp insert in such a manner (e.g., by the use of the hexagonal jaws 70, 72 in FIG. 6 of the present application) as to deform the insert uniformly in a radial direction. A restraining force is therefore applied directly onto a hard coating of a fiber extending in the second portion of the insert bore (labeled D2 in FIG. 5). The first portion of the bore restrains an outer jacket of the cable (which may be elastomeric) also via uniform radial compression, and not by flow.

In view of all the foregoing, claims 1-20 call for a connector system and assembly that are not taught or suggested by the cited art. Allowance of the claims and passing of the application to issue are respectfully solicited.

Respectfully submitted,



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